

FIG. 1

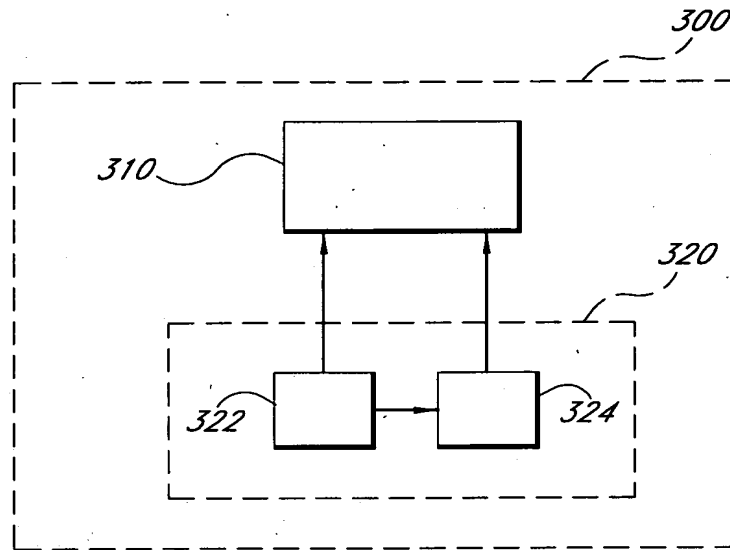


FIG. 2

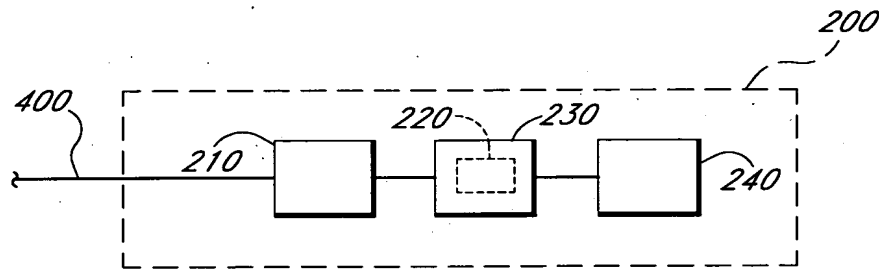


FIG. 3A

LASER HEAD FOR IRRADIATION AND REMOVAL OF MATERIAL FROM A SURFACE OF A STRUCTURE

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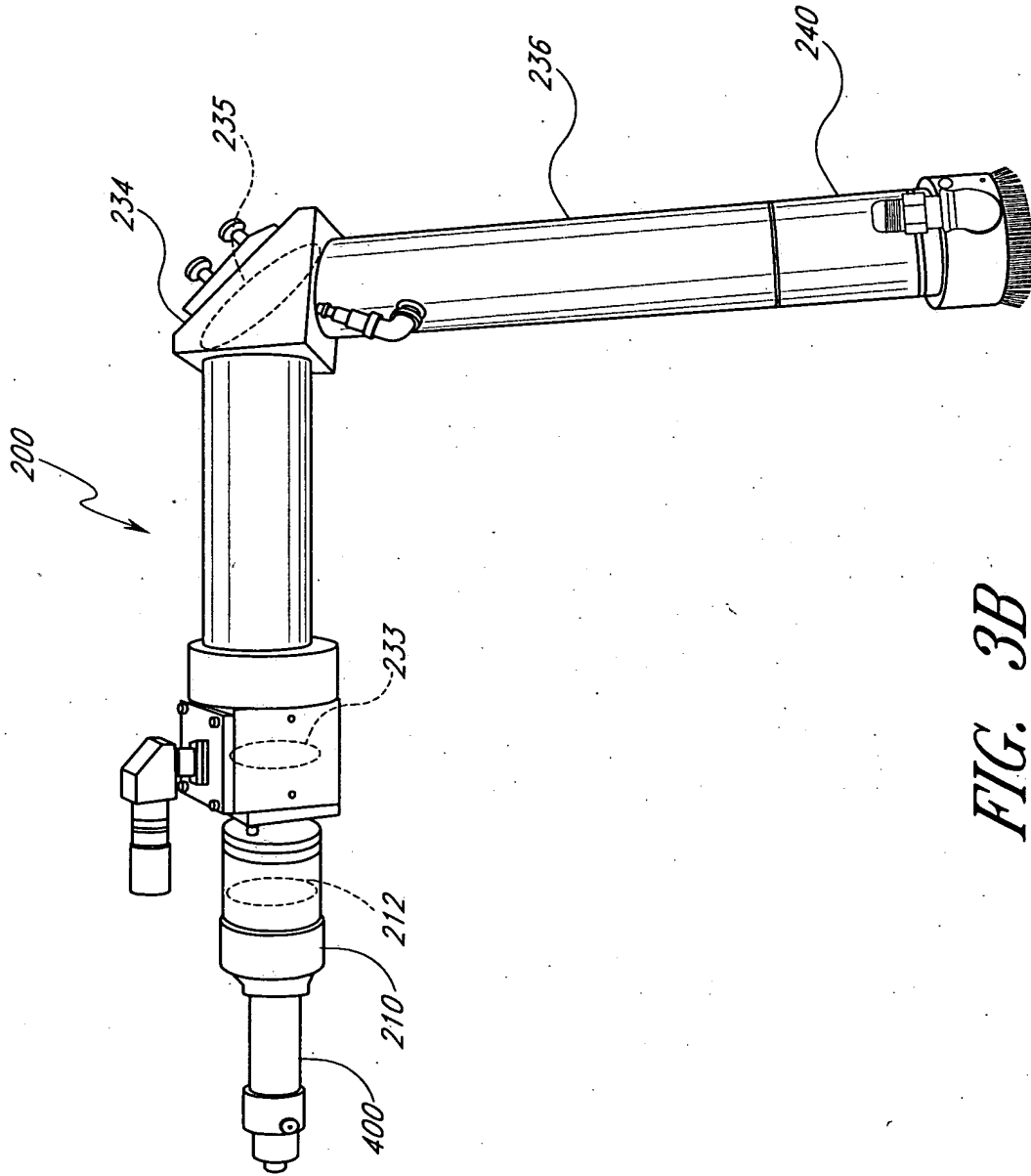


FIG. 3B

LASER HEAD FOR IRRADIATION AND REMOVAL OF MATERIAL FROM A SURFACE OF A STRUCTURE

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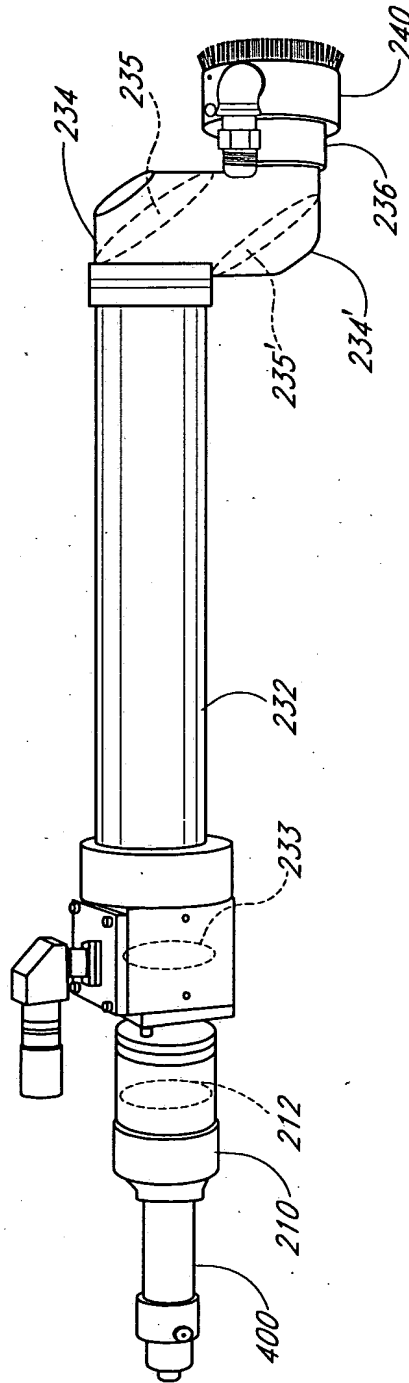


FIG. 3C

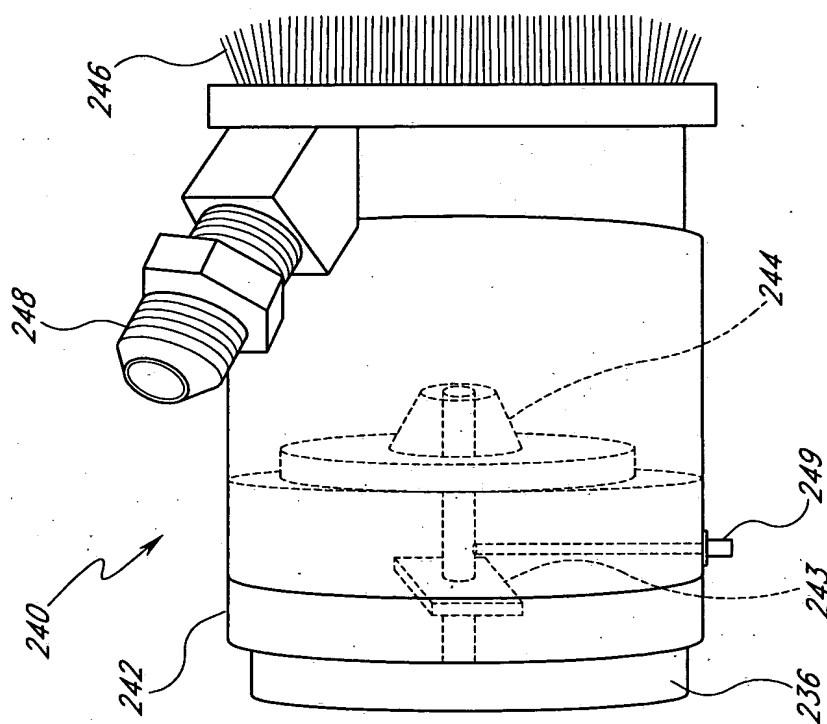


FIG. 4

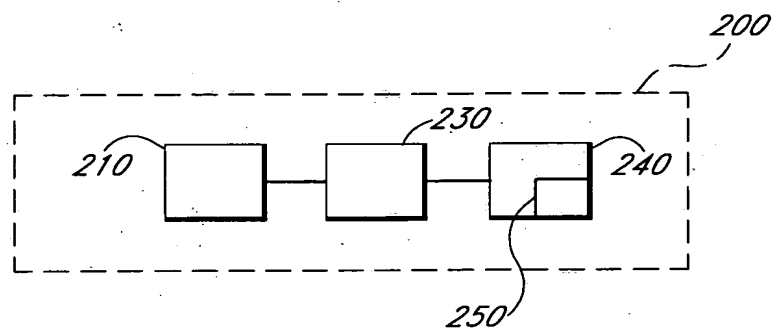


FIG. 5

LASER HEAD FOR IRRADIATION AND REMOVAL OF MATERIAL FROM A SURFACE OF A STRUCTURE

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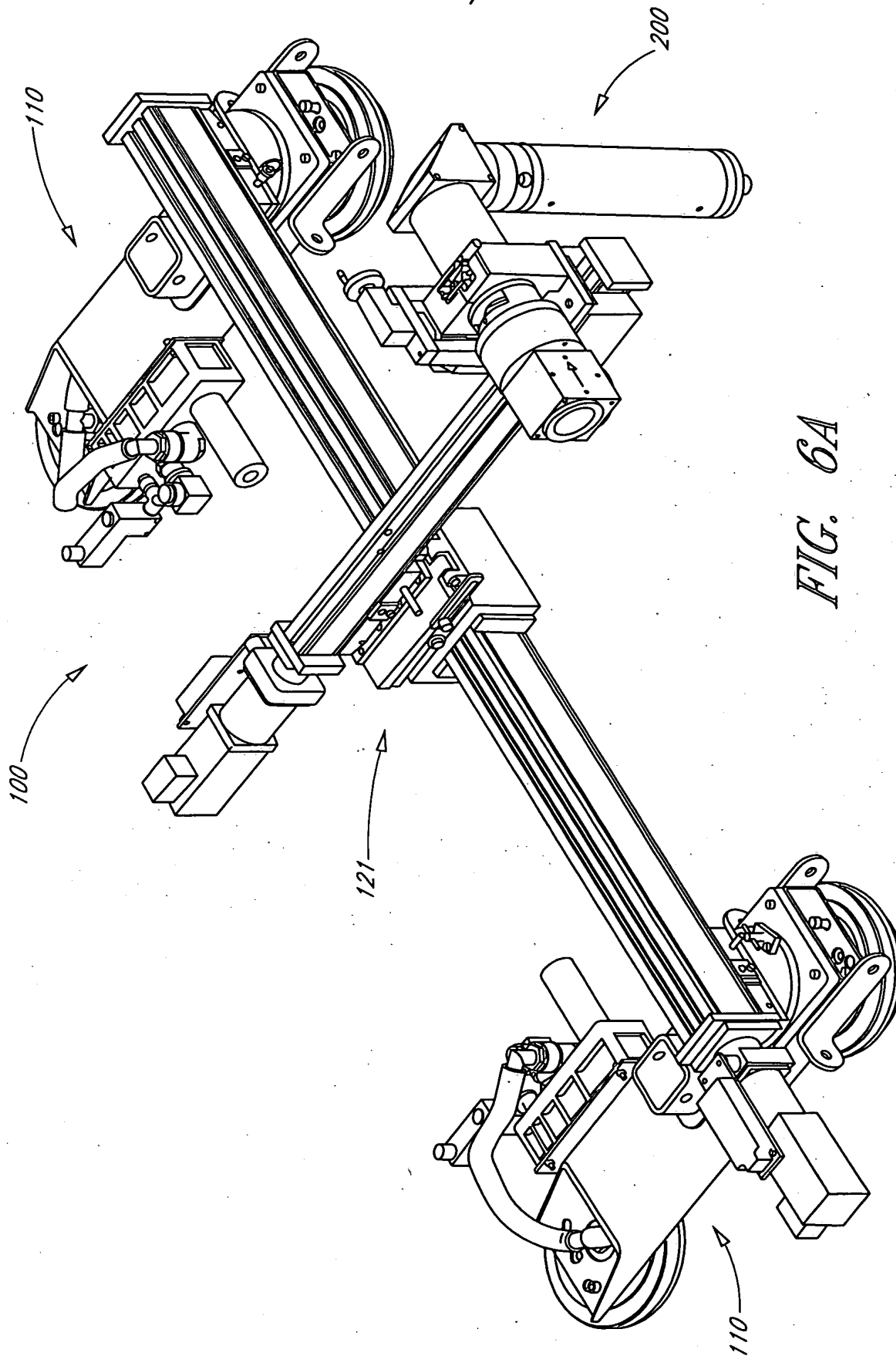


FIG. 6A

LASER HEAD FOR IRRADIATION AND REMOVAL OF MATERIAL FROM A SURFACE OF A STRUCTURE

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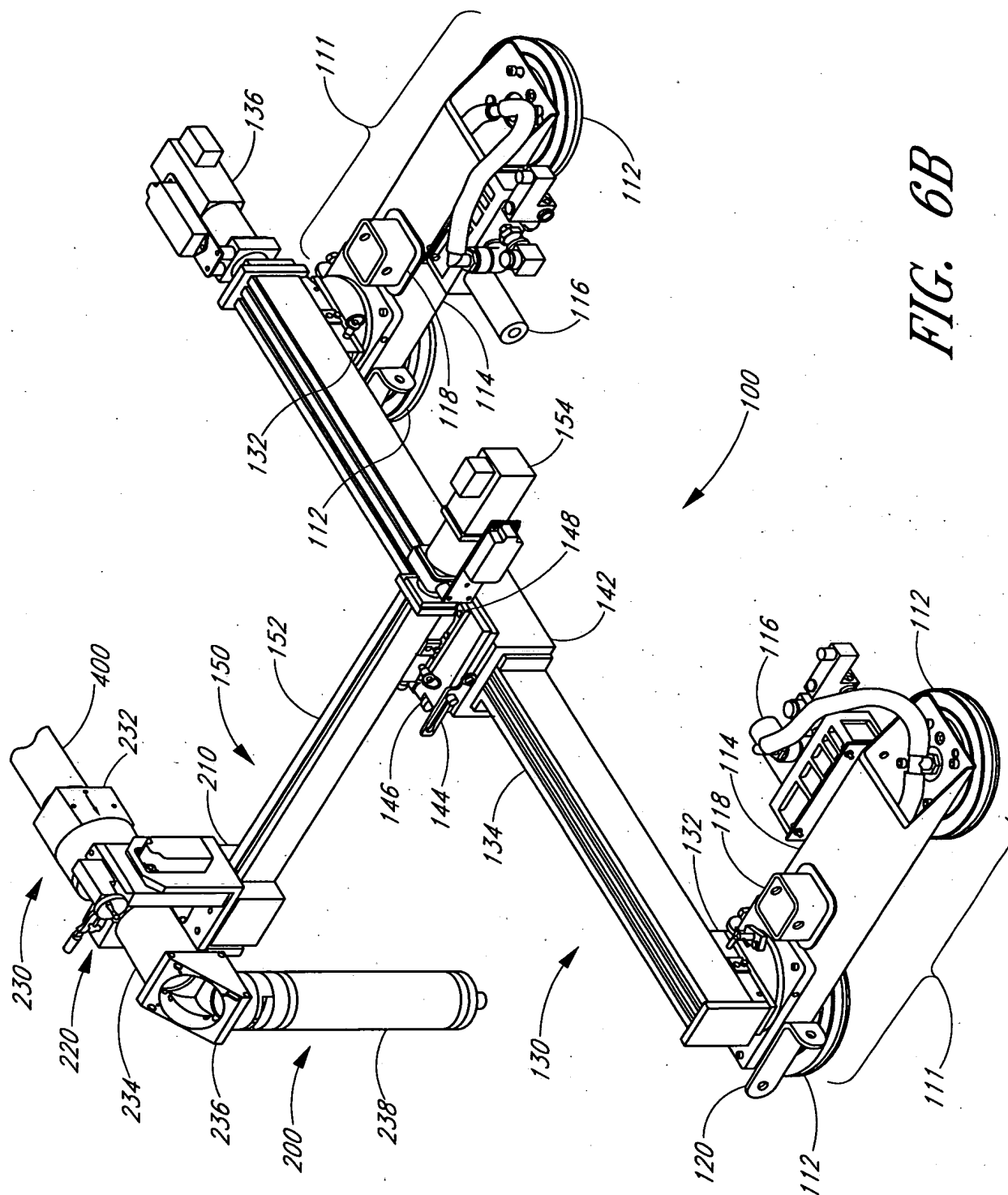


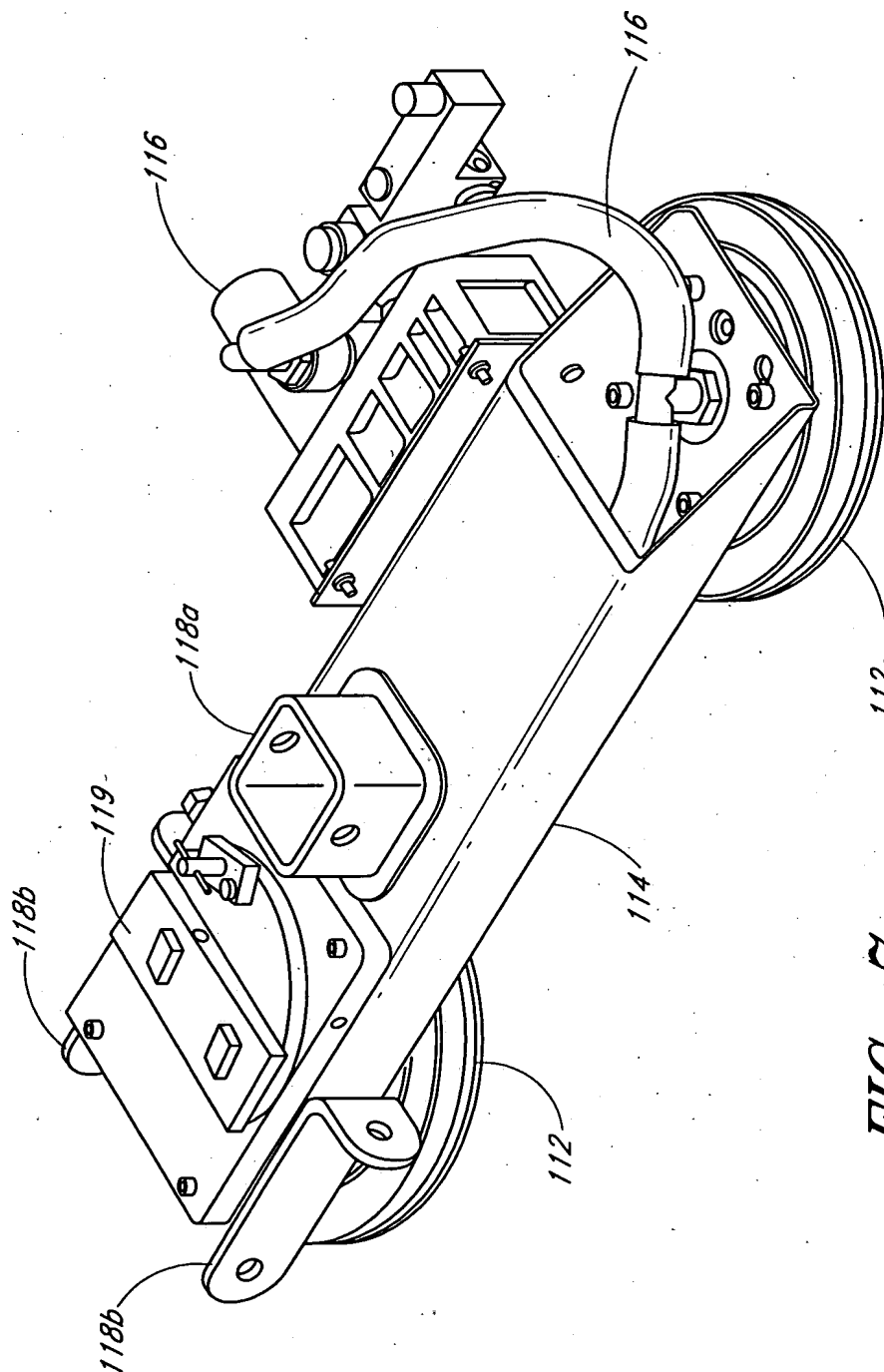
FIG. 6B

LASER HEAD FOR IRRADIATION AND REMOVAL OF MATERIAL FROM A SURFACE OF A STRUCTURE

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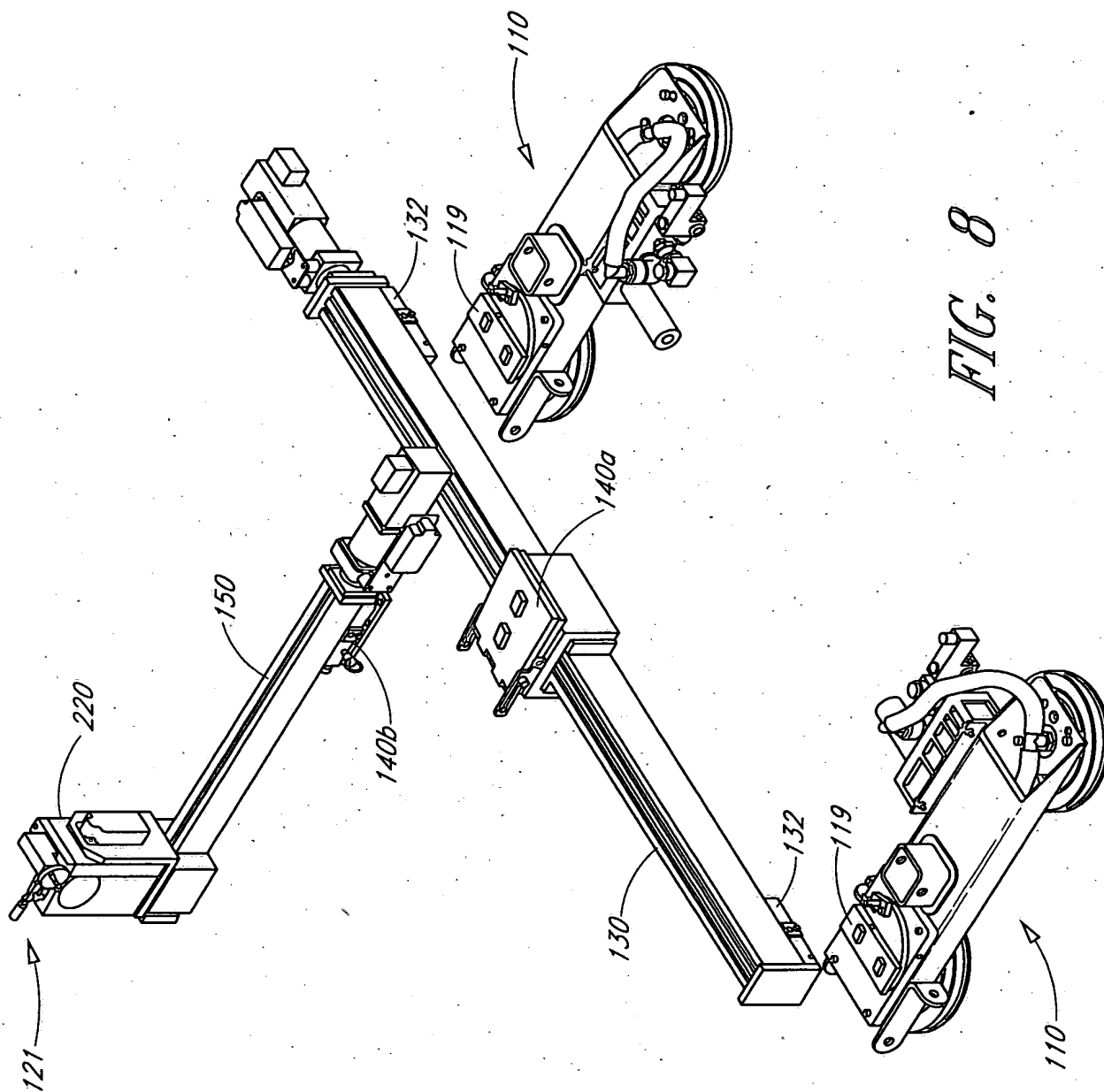


LASER HEAD FOR IRRADIATION AND REMOVAL OF MATERIAL FROM A SURFACE OF A STRUCTURE

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LASER HEAD FOR IRRADIATION AND REMOVAL OF MATERIAL FROM A SURFACE OF A STRUCTURE

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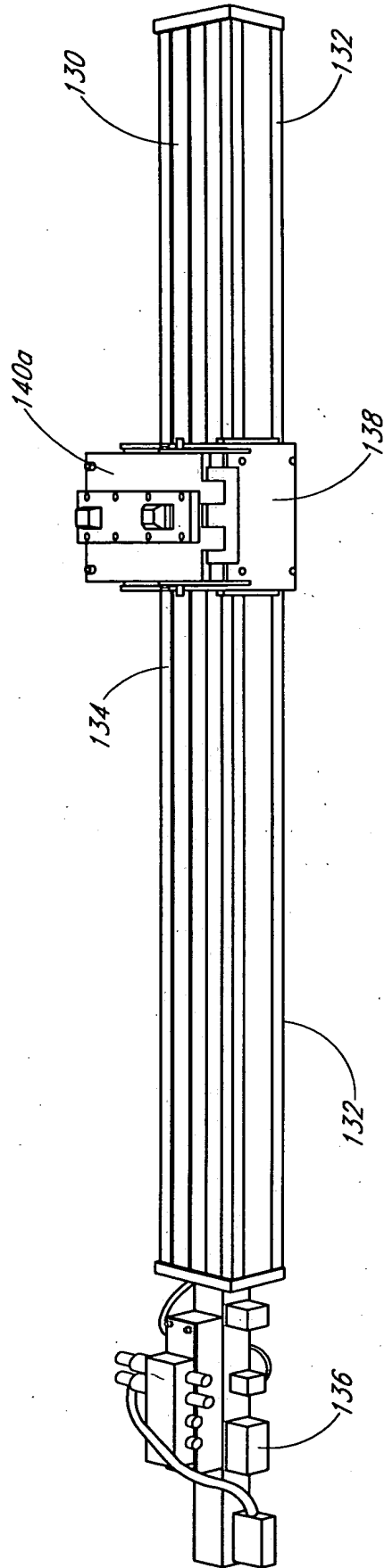
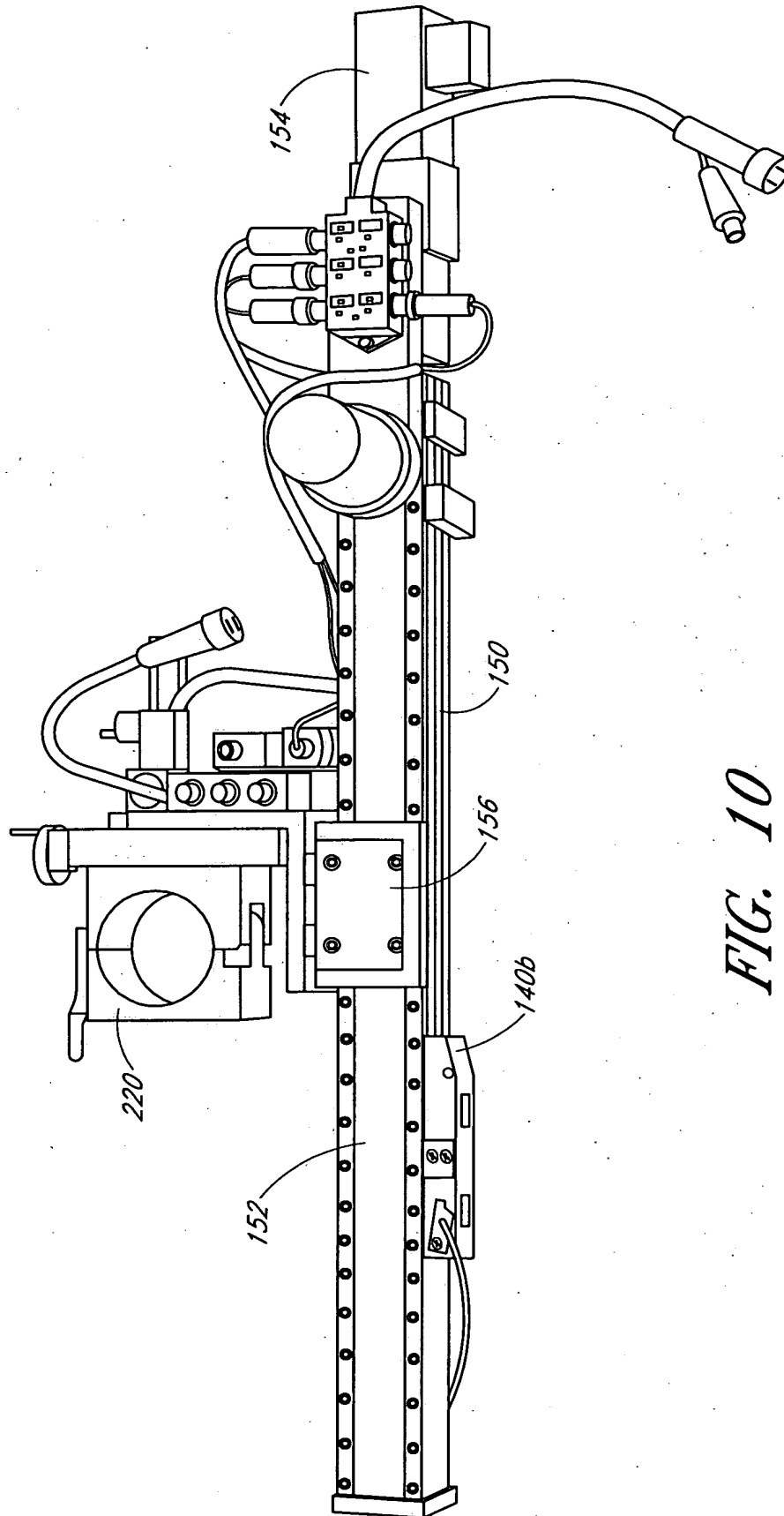


FIG. 9

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FIG. 10



LASER HEAD FOR IRRADIATION AND REMOVAL OF MATERIAL FROM A SURFACE OF A STRUCTURE

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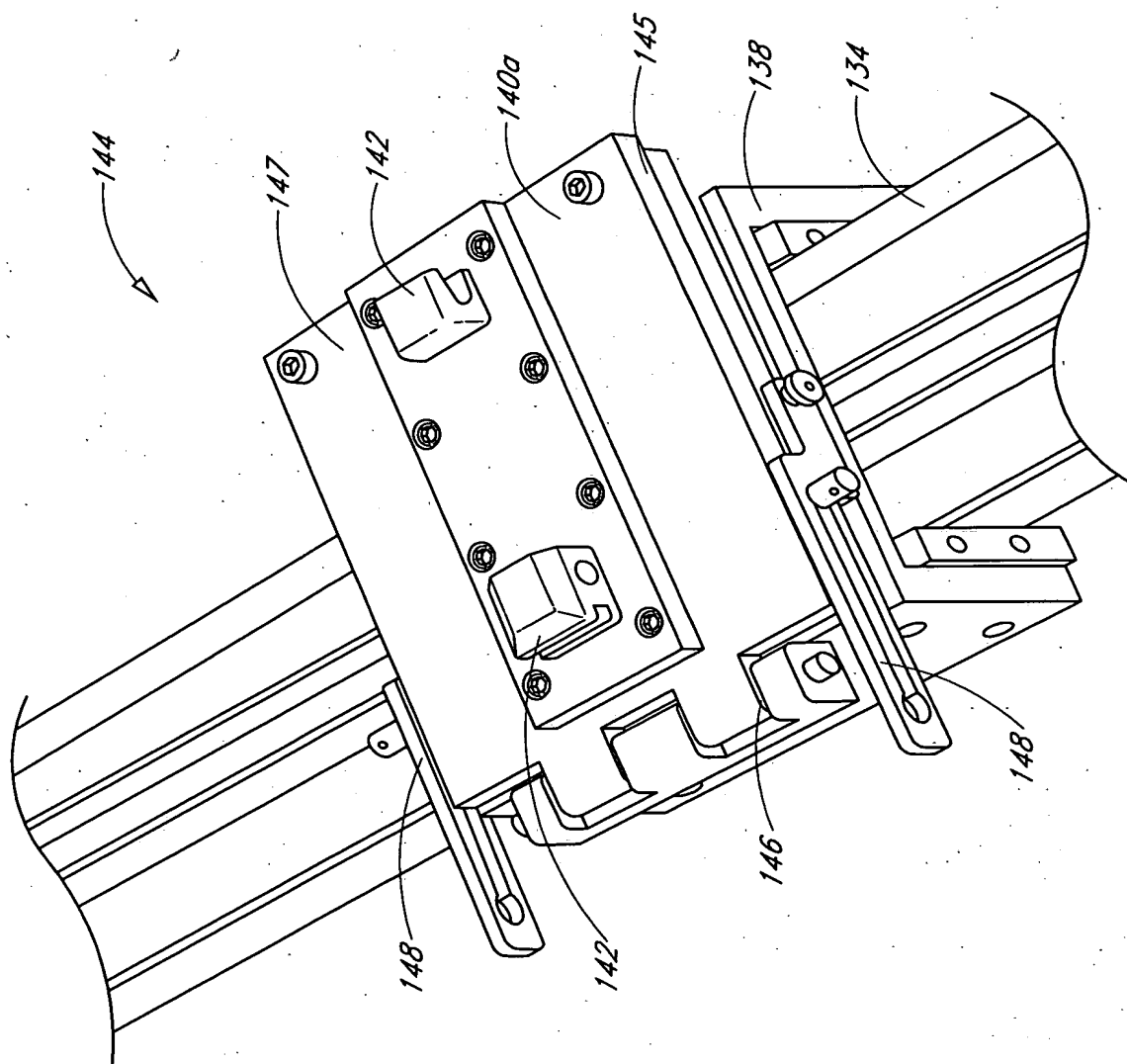


FIG. 11A

LASER HEAD FOR IRRADIATION AND REMOVAL OF MATERIAL FROM A SURFACE OF A STRUCTURE

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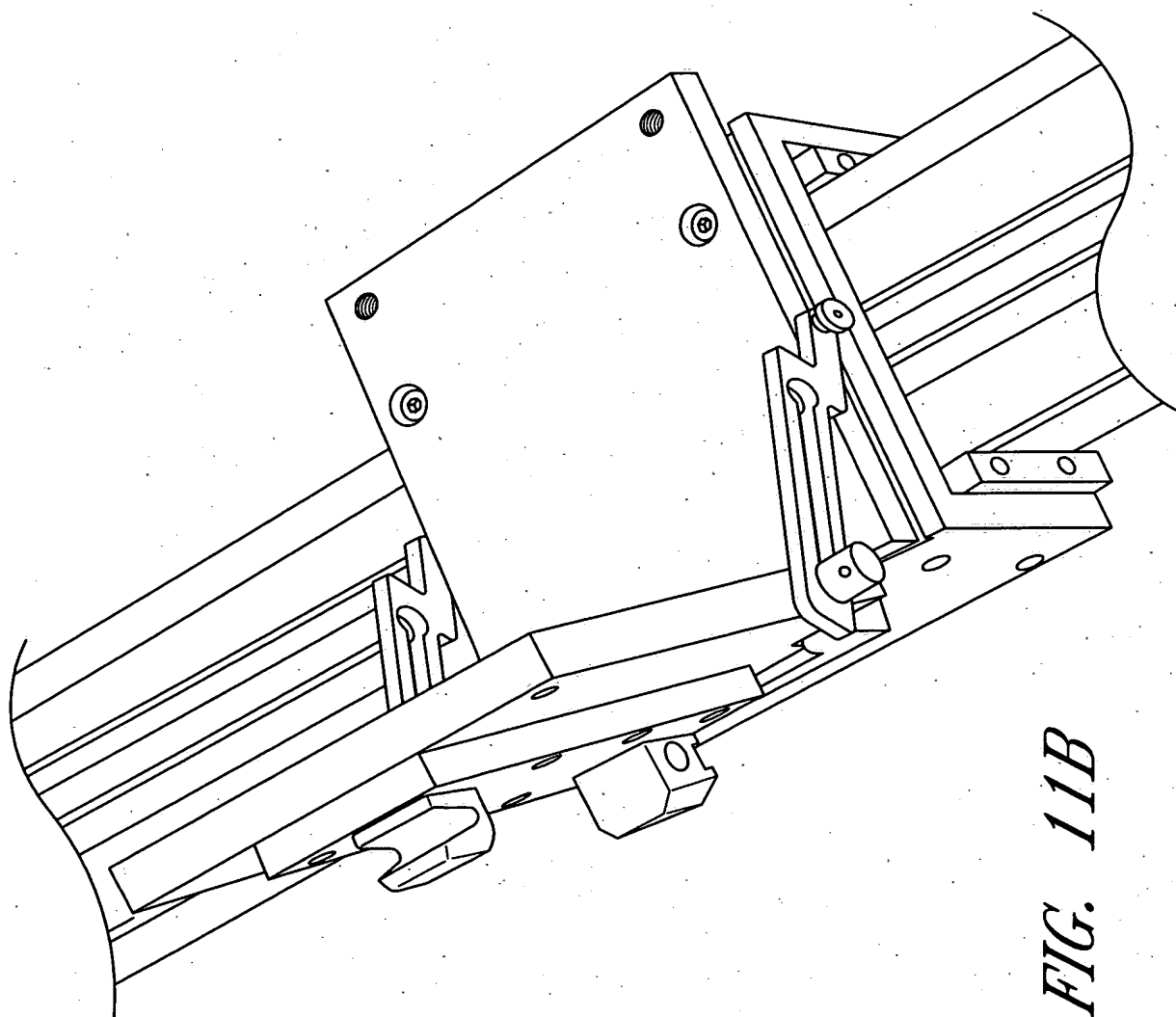


FIG. 11B

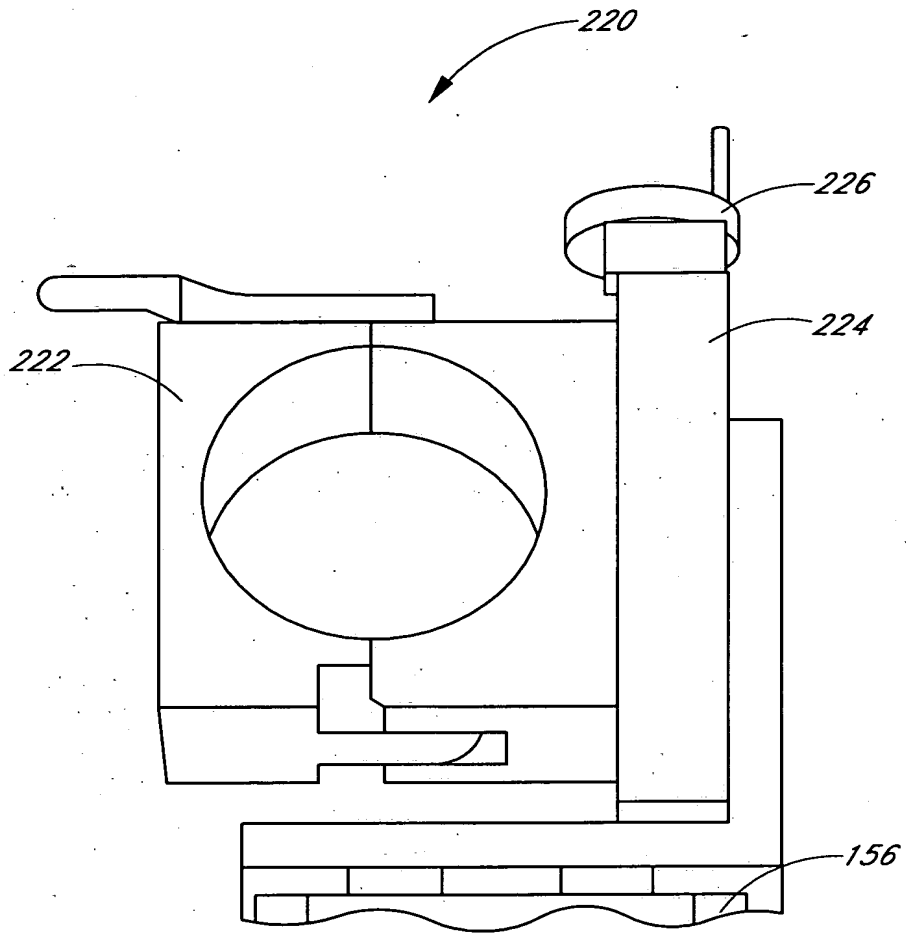


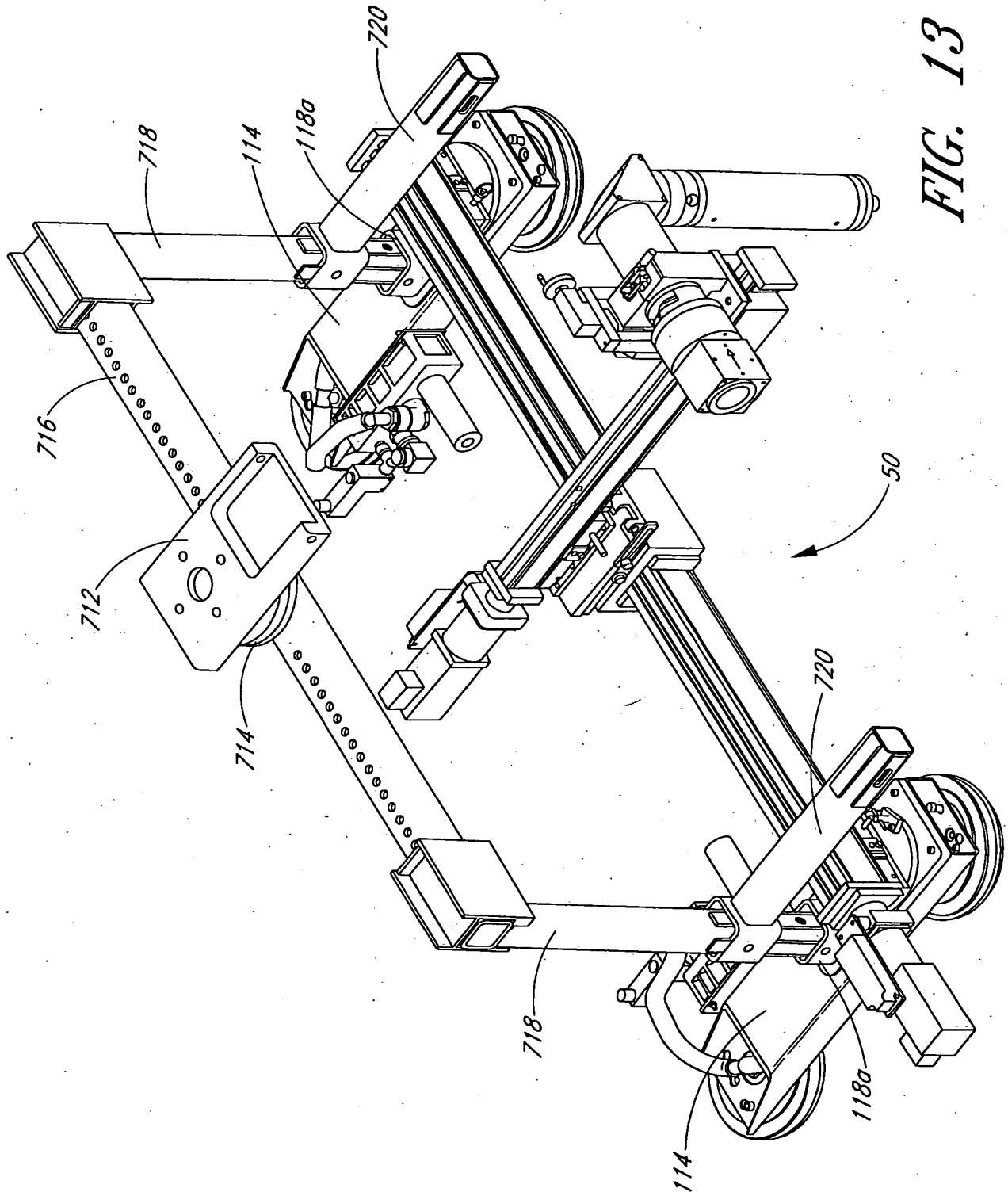
FIG. 12

LASER HEAD FOR IRRADIATION AND REMOVAL OF MATERIAL FROM A SURFACE OF A STRUCTURE

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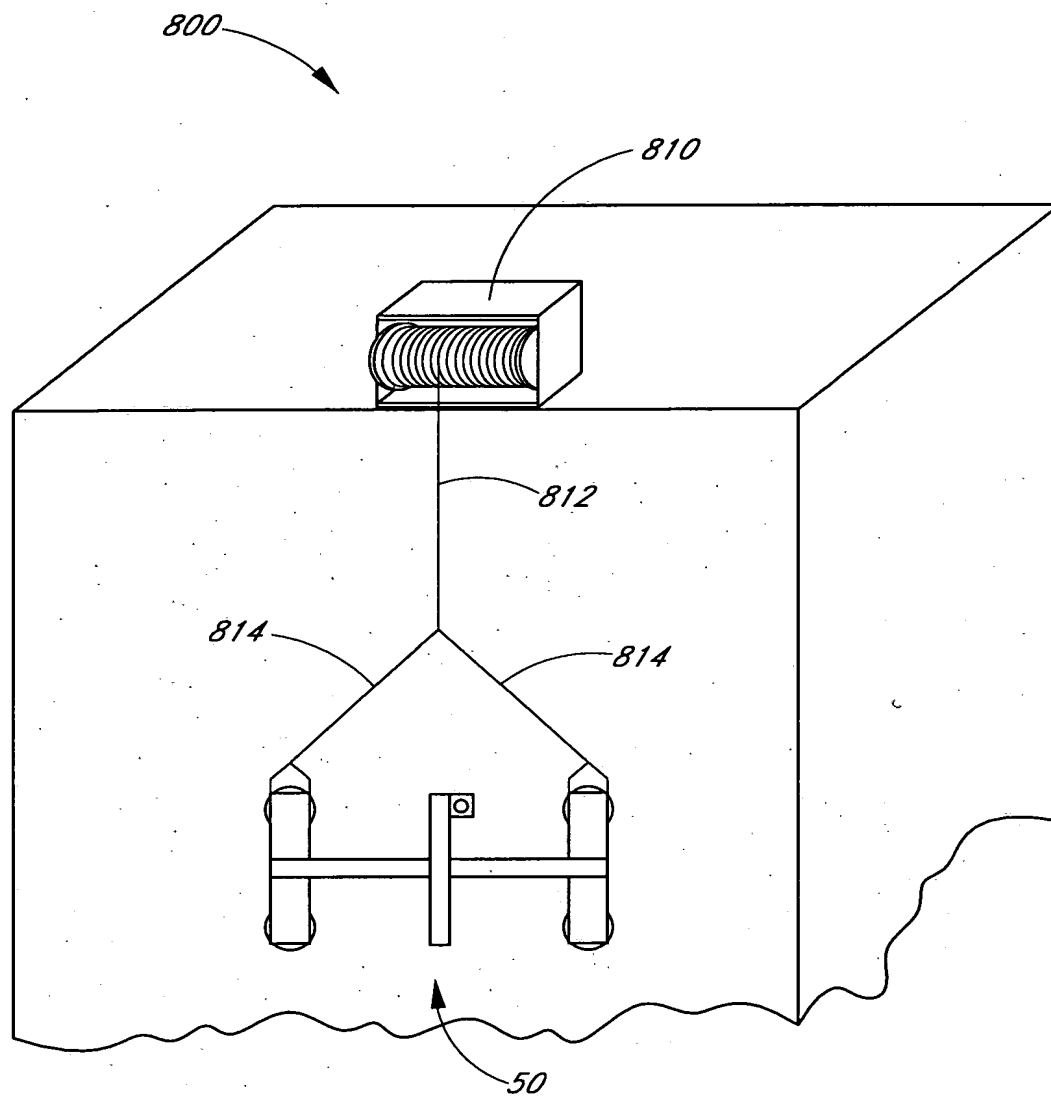


FIG. 14A

LASER HEAD FOR IRRADIATION AND REMOVAL OF MATERIAL FROM A SURFACE OF A STRUCTURE

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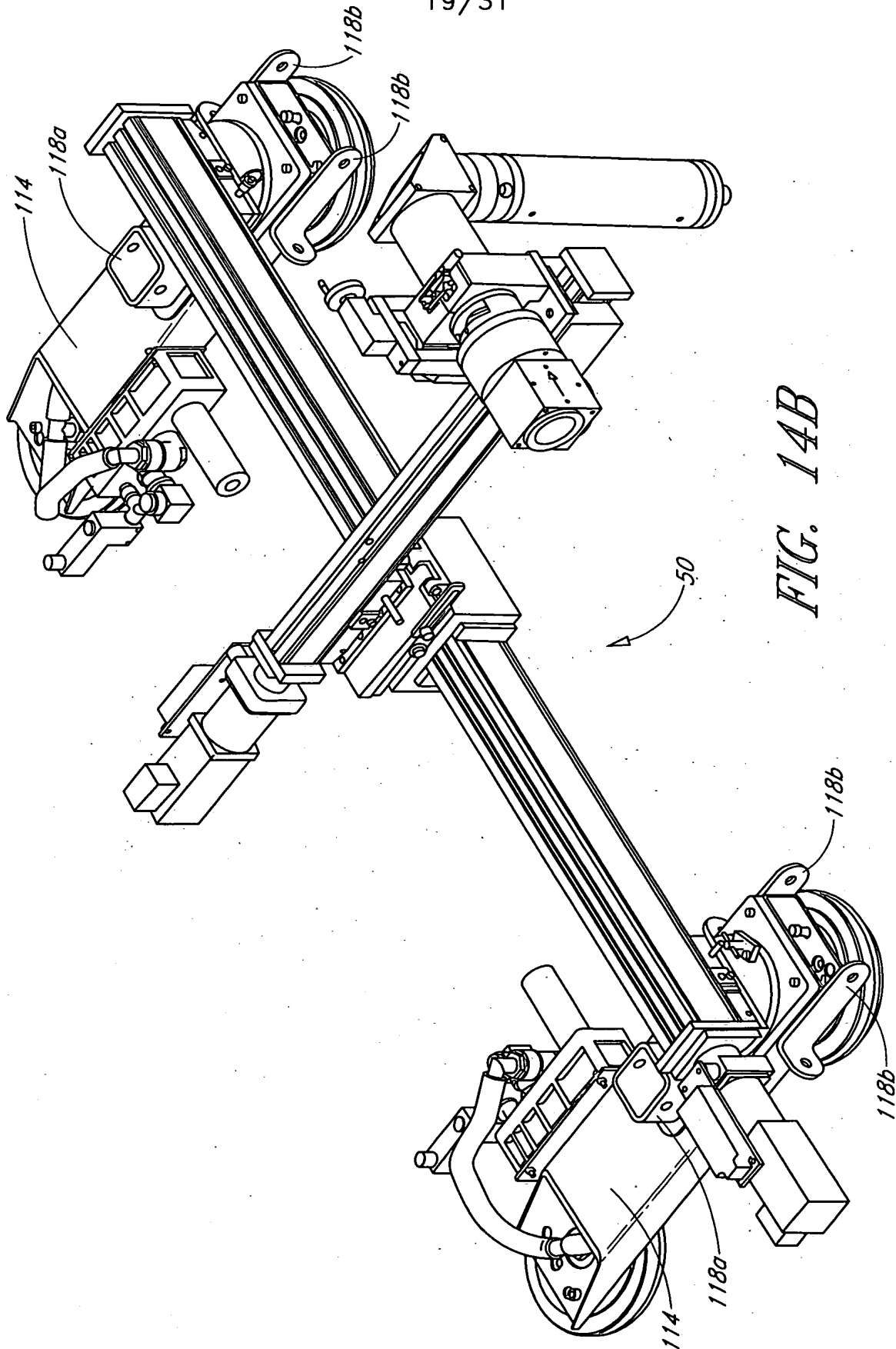


FIG. 14B

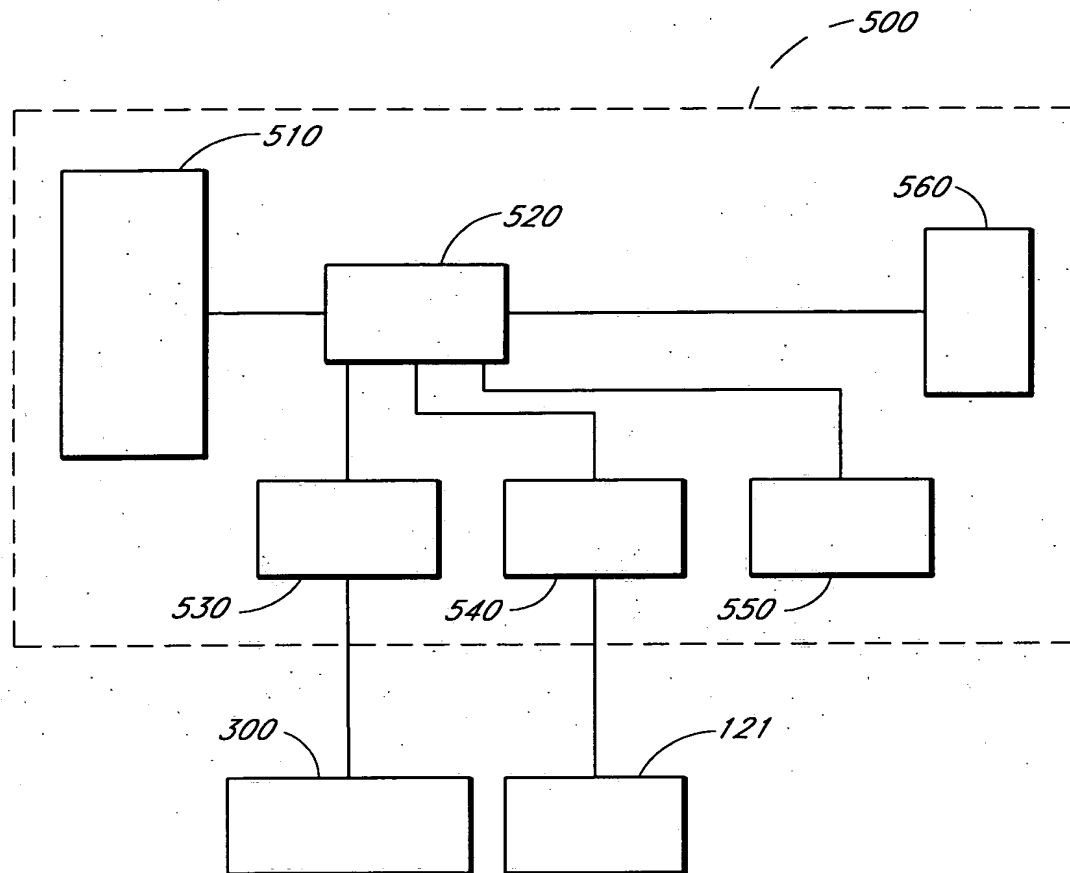


FIG. 15

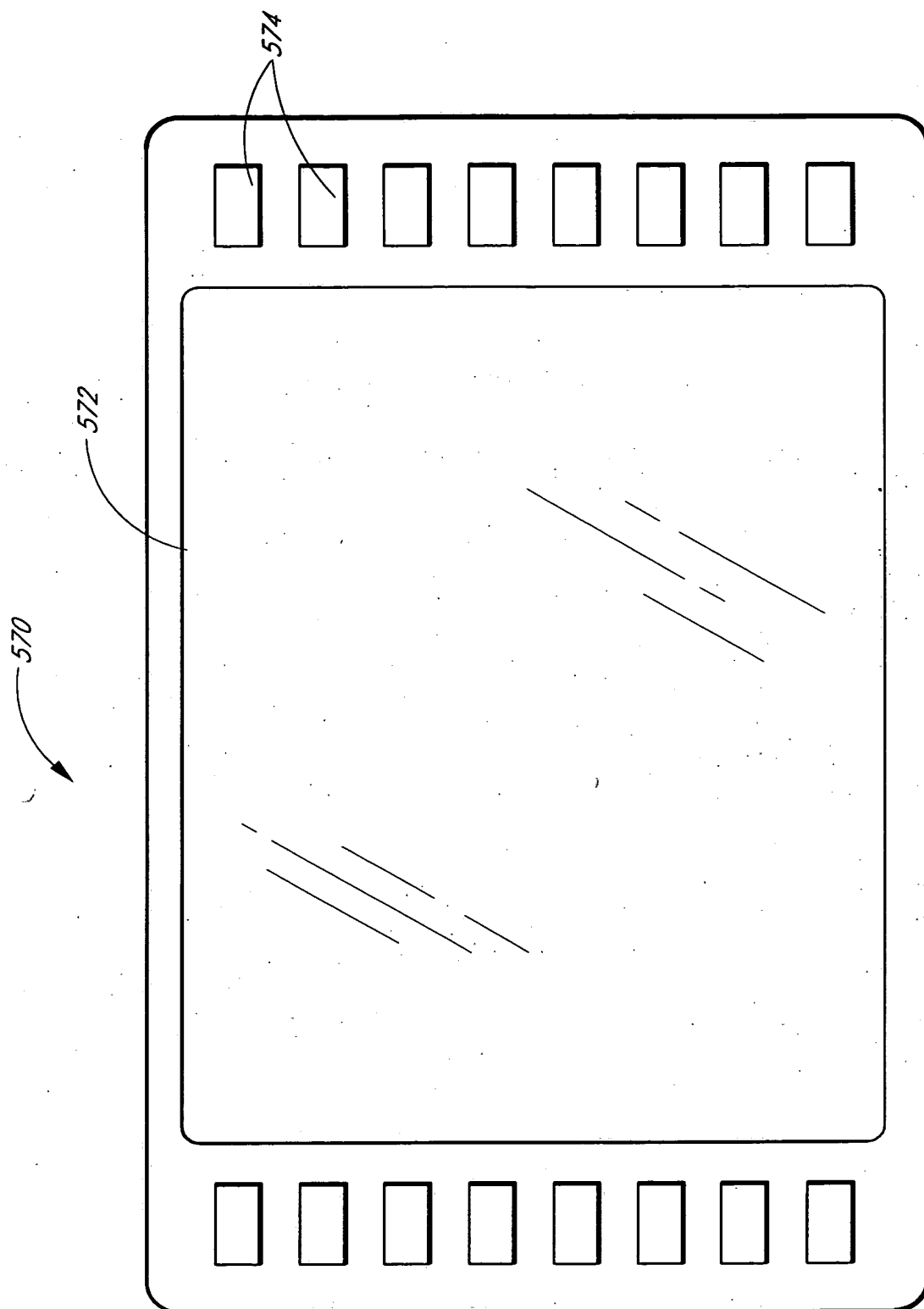


FIG. 16

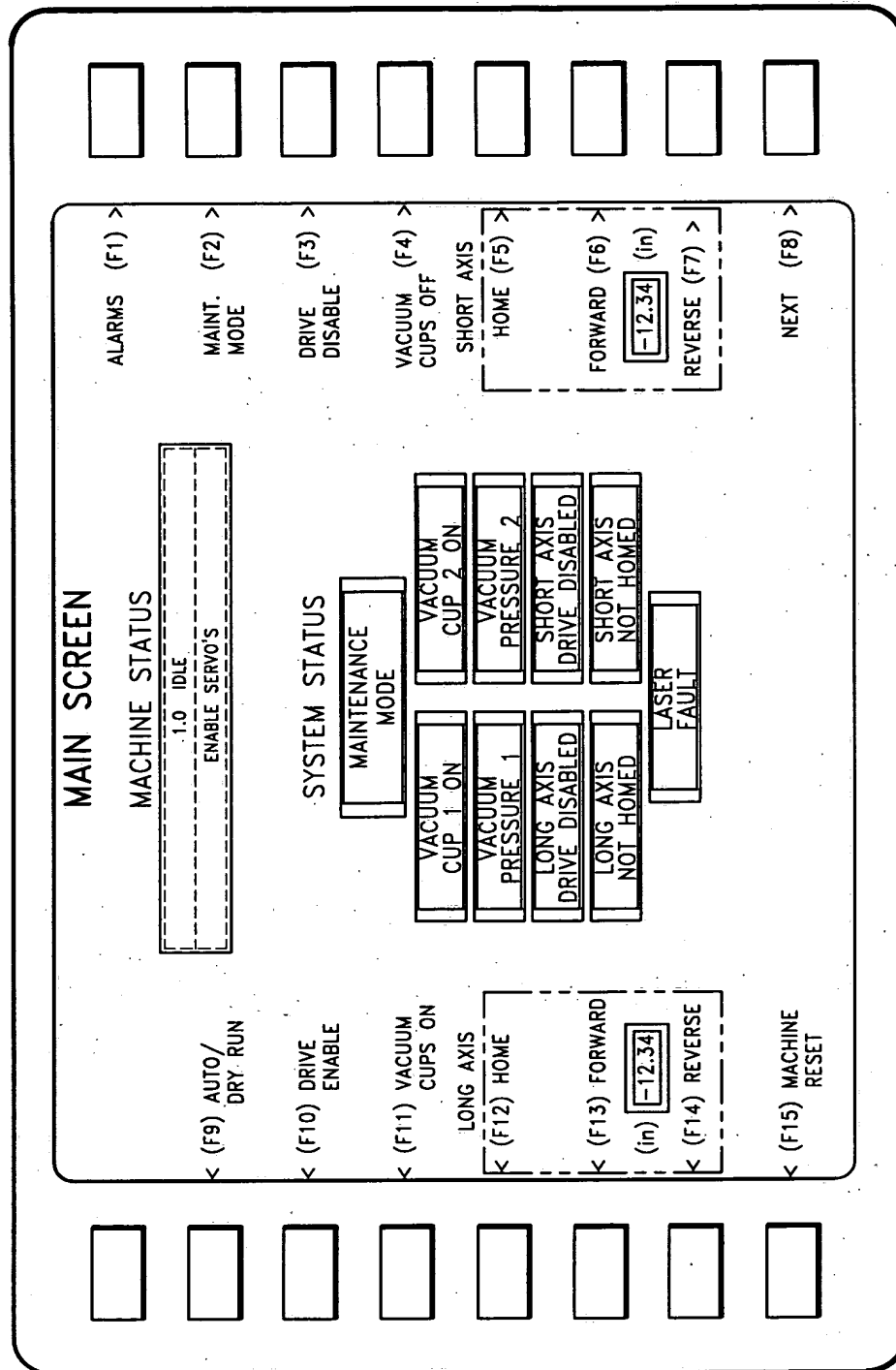


FIG. 17A

SELECT OPERATION SCREEN

MACHINE STATUS

1.0 IDLE
ENABLE SERVO'S

< (F9) AUTO/
DRY RUN

SYSTEM STATUS

MAINTENANCE
MODE

CIRCLE
IDLE

PIERCE
IDLE

STRAIGHT CUT
IDLE

SURFACE KEYING
IDLE

< (F15) MACHINE
RESET

**LONG AXIS
POSITION**

-12.34 (in)

< (F11) CIRCLE

**SHORT AXIS
POSITION**

-12.34 (in)

< (F12) PIERCE

< (F13) STRAIGHT CUT

< (F14) SURFACE
KEYING

NEXT (F8) >

FIG. 17B

CIRCLE SETUP/OPERATION SCREEN

< (F9) AUTO/
DRY RUN

MACHINE STATUS

1.0 IDLE

ENABLE SERVO'S

CIRCLE STATUS

2.0 CIRCLE SEQUENCE IDLE

PRESS CYCLE START TO BEGIN

SYSTEM STATUS

MAINTENANCE
MODE

LONG AXIS
POSITION

-12.34 (in)

SHORT AXIS
POSITION

-12.34 (in)

CYCLE (F4) >
STOP

CIRCLE PARAMETERS

REVOLUTIONS

STATUS 1234

SET POINT 1234

COUNT 123

DIAMETER (in)

STATUS -1.234

SET POINT -1.234

TIME (sec)

STATUS 1234

SET POINT 1234

SPEED (in/min)

STATUS -12.34

SET POINT -12.34

PROGRAM NUMBER

STATUS 12

SET POINT 12

< (F15) MACHINE
RESET

NEXT (F8) >

FIG. 17C

PIERCE SETUP/OPERATION SCREEN

< (F9) AUTO/
DRY RUN

MACHINE STATUS

1.0 IDLE

ENABLE SERVO'S

CYCLE (F4) >
STOP

< (F11) CYCLE
START

PIERCE STATUS

3.0 PIERCE SEQUENCE IDLE

PRESS CYCLE START TO BEGIN

LONG AXIS
POSITION

-12.34 (in)

< (F15) MACHINE
RESET

SYSTEM STATUS

MAINTENANCE
MODE

SHORT AXIS
POSITION

-12.34 (in)

TIME (sec)

STATUS 1234

SET POINT 1234

PIERCE PARAMETERS

LBU
PROGRAM NUMBER

STATUS 12

SET POINT 12

NEXT (F8) >

FIG. 17D

CUT SETUP/OPERATION SCREEN

MACHINE STATUS

1.0 IDLE
ENABLE SERVO'S

CUT STATUS

4.0 CUT SEQUENCE IDLE
PRESS CYCLE START TO BEGIN

SYSTEM STATUS

MAINTENANCE
MODE

CUT PARAMETERS

LONG AXIS POSITION

-12.34 (in)

SHORT AXIS POSITION

-12.34 (in)

SPEED (in/min)

STATUS -12.34
SET POINT -12.34

LENGTH (in)

STATUS -12.34
SET POINT -12.34

LONG AXIS

NOT SELECTED

SHORT AXIS

NOT SELECTED

LBU PROGRAM NUMBER

STATUS 12
SET POINT 12

CYCLE (F4) STOP

< (F9) AUTO/ DRY RUN

< (F11) CYCLE START

< (F13) LONG AXIS

< (F14) SHORT AXIS

< (F15) MACHINE RESET

NEXT (F8) >

FIG. 17E

SURFACE KEYING SETUP/OPERATION SCREEN

< (F9) AUTO/
DRY RUN

MACHINE STATUS

1.0 IDLE
ENABLE SERVO'S

SURFACE KEYING STATUS

5.0 KEYING SEQUENCE IDLE
PRESS CYCLE START TO BEGIN

SYSTEM STATUS

MAINTENANCE
MODE

CYCLE (F4) >
STOP

LONG AXIS
POSITION
[-12.34] (in)

SURFACE KEYING PARAMETERS

SHORT AXIS
POSITION
[-12.34] (in)

LONG AXIS
LENGTH (in)

**LBU
PROGRAM NUMBER**

STATUS [12]
SET POINT [12]

STATUS [-12.34]
SET POINT [-12.34]

SPEED (in/min)

STATUS [-12.34]
SET POINT [-12.34]

STATUS [-12.34]
SET POINT [-12.34]

OFFSET (in)

STATUS [-12.34]
SET POINT [-12.34]

STATUS [-12.34]
SET POINT [-12.34]

NEXT (F8) >

< (F11) CYCLE
START

**MACHINE
RESET**

< (F15) MACHINE
RESET

FIG. 17F

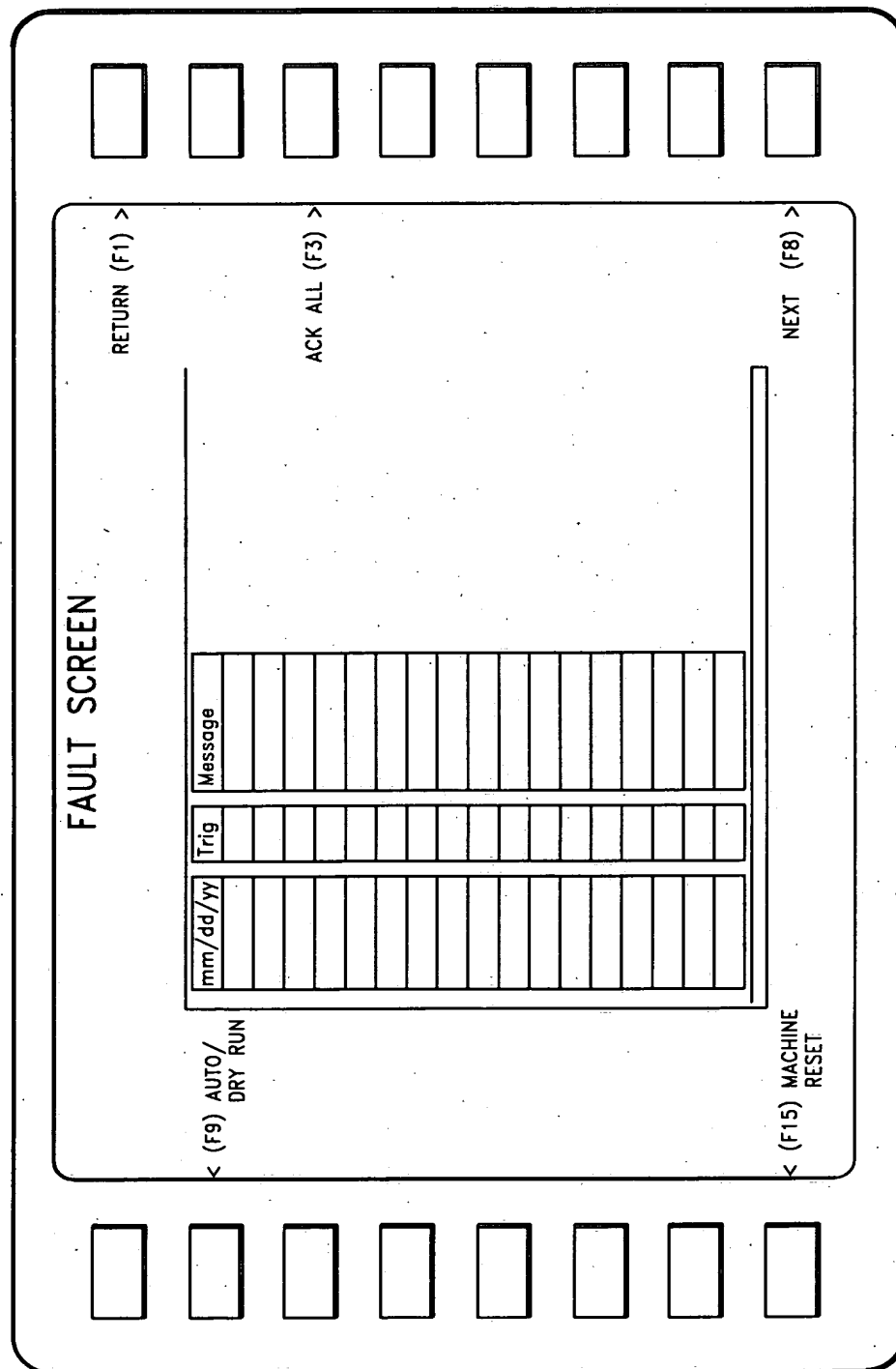


FIG. 17G.

MAINTENANCE SCREEN

WARNING:
OPERATION FROM THIS SCREEN
BYPASSES SYSTEM INTERLOCKS

SYSTEM STATUS

MAINTENANCE
MODE

VACUUM
CUP 1 ON

VACUUM
CUP 2 ON

VACUUM
PRESSURE 1

VACUUM
PRESSURE 2

LONG AXIS
DRIVE DISABLED

SHORT AXIS
DRIVE DISABLED

LASER AIR
SOLENOID OFF

LASER AIR
PRESSURE

LONG AXIS
NOT HOMED

SHORT AXIS
NOT HOMED

LASER
FAULT

JOG SPEED
(in/min)

STATUS -12.34

SET POINT -12.34

< (F9) AUTO/
DRY RUN

< (F10) DRIVE
ENABLE

< (F11) VACUUM
CUPS ON

LONG AXIS

< (F12) HOME

< (F13) FORWARD
(in) -12.34

< (F14) REVERSE

< (F15) MACHINE
RESET

ALARMS (F1) >

LASER AIR (F2) >
ON/OFF

DRIVE (F3) >
DISABLE

VACUUM (F4) >
CUPS OFF

SHORT AXIS

HOME (F5) >

FORWARD (F6) >
(in) -12.34

REVERSE (F7) >

NEXT (F8) >

FIG. 17H

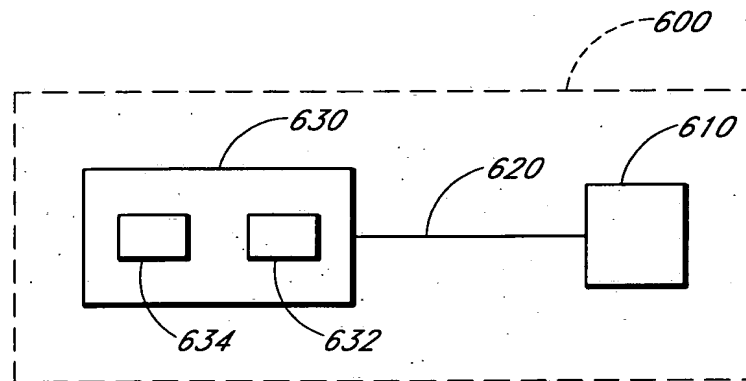


FIG. 18

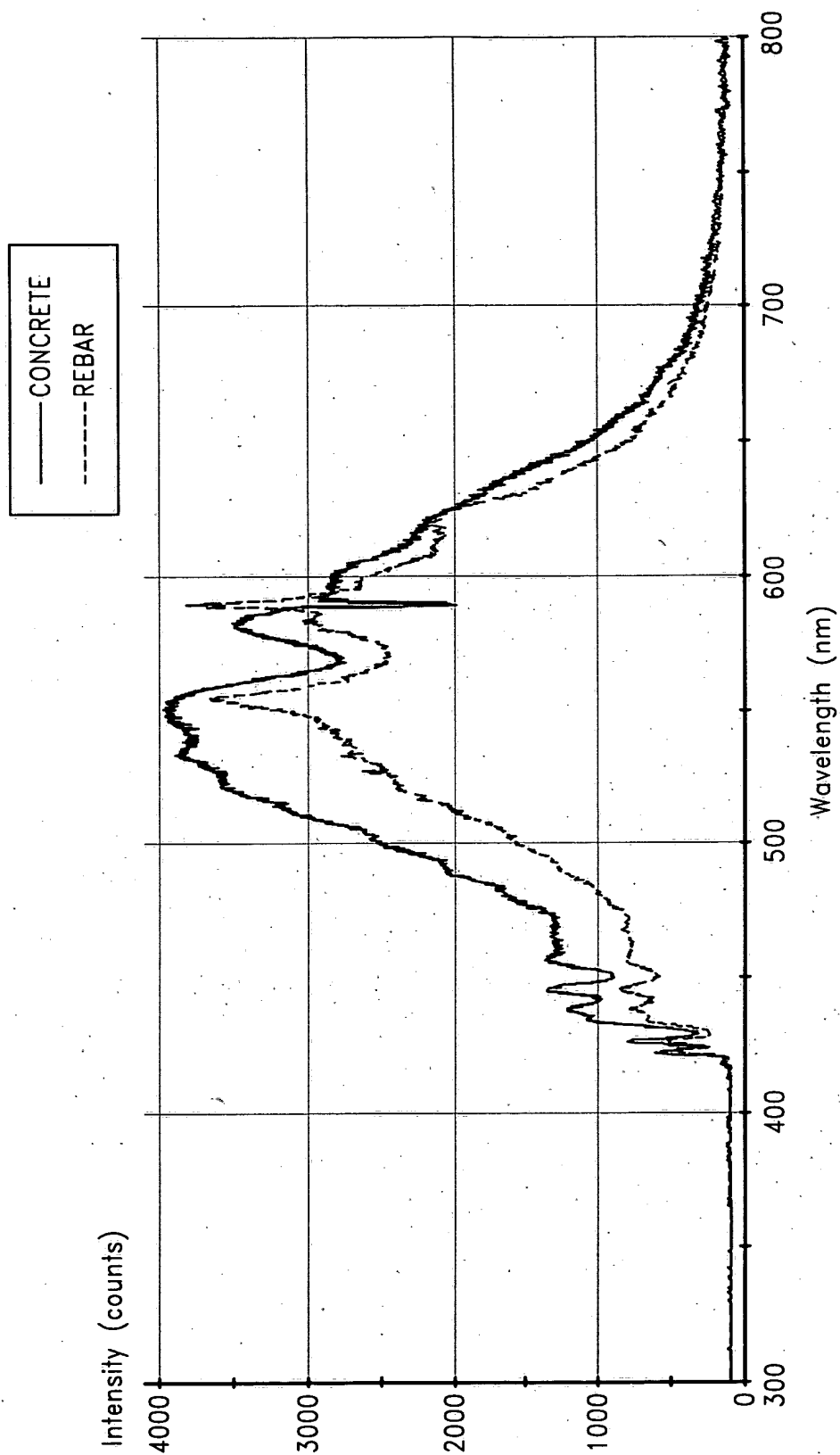


FIG. 19